

REMARKS

In the Office Action, the Examiner rejected claims 33-45 and 68-74. In view of the following remarks, Applicants respectfully request reconsideration and allowance of all pending claims.

Claim Rejections Under 35 U.S.C. § 103(a)

In the Office Action, the Examiner rejected claims 33-38, 41, 42, 68, 69, 70, and 71-73 under 35 U.S.C. § 103(a) as being unpatentable over Chiu, U.S. Patent no. 5,239,199 (hereinafter “Chiu”) in view of Jeffries et al., U.S. Patent No. 5,815,371 (hereinafter “Jeffries”) or alternatively in view of either Edfors, U.S. Patent No. 5,050,039 (hereinafter “Edfors”) or Russell et al., U.S. Patent No. 5,432,678 (hereinafter “Russell”); and rejected claims 39, 40, 43-45, and 74 under 35 U.S.C. § 103(a) as being unpatentable over Chiu in view of Jeffries and further in view of Cipolla et al., U.S. Patent No. 5,343,366 (hereinafter “Cipolla”) or alternatively in view of Shuff, U.S. Patent No. 5,812,374 (hereinafter “Shuff”). Applicants respectfully traverse these rejections.

Legal Precedent

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (B.P.A.I. 1979). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 U.S.P.Q. 580 (C.C.P.A. 1974). However, it is not enough to show that all the elements exist in the prior art since a claimed invention composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). It is important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. *Id.* Specifically, there must be some articulated reasoning with a rational underpinning to support a conclusion of obviousness; a conclusory statement will not suffice. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Indeed, the factual inquiry determining whether to combine references must be thorough

and searching, and it must be based on *objective evidence of record*. *In re Lee*, 61 U.S.P.Q.2d 1430, 1436 (Fed. Cir. 2002).

Missing Elements of the Primary Reference with Regard to Independent Claims 68 and 71

In addition to the arguments set forth below regarding the improper combination of references, Applicants would like to point out deficiencies of Chiu with respect to specific elements recited in independent claims 68 and 71. For example, independent claim 68 recites, *inter alia*, “*at least one rail* coupled to the surface, *wherein the rail extends along the sides of the plurality of integrated circuit packages* and is configured to engage the plurality of integrated circuit packages.” (Emphasis added). In contrast, the structure disclosed in Chiu engages the *top* of various memory devices, and does not include a rail extending along the sides of the memory devices. As stated in Chiu, “[d]evice 10 has a heat sink 16 mounted on the top side, as illustrated.” Chiu, col. 2, lines 12-13. Further, Chiu also states that “[t]o assembly [sic] an array 30 of devices 10, they may be mounted in heat sink/holding fixture 31 by placing the heat sink 16 of each device in a slot 34 in the top of the fixture.” *Id.*, col. 2, lines 50-54. Thus, Chiu does not disclose “*at least one rail*” that “*extends along the sides of the plurality of integrated circuit packages*” as recited in independent claim 68.

Additionally, Chiu does not disclose additional claim features of independent claim 71. For example, independent claim 71 recites, *inter alia*, “*a cross piece coupled to the surface and extending over the plurality of integrated circuit packages in a direction transverse to the plurality of integrated circuit packages*.” In contrast, Chiu discloses a fixture 31 that includes a slot in the fixture to engage each device and appears to engage each device in a longitudinal direction. Chiu, col. 2, lines 49-53. Further, as seen in FIG. 6 in Chiu, there is no cross piece that extends *over* the devices as recited in independent claim 71, but rather, the fixture 31 includes slots such that the devices insert into the fixture itself. *Id.*, FIG. 6. Thus, Chiu does not disclose “*a cross piece...extending over the plurality of integrated circuit packages*” as recited in independent claim 71.

Deficiencies of the First §103 Rejection

In the rejection, the Examiner stated that “Chiu discloses the claimed invention ***expect having the support being secured to the surface***. Jeffries, as well as Edfors and Russell, discloses the support being secured to the surface of a circuit board. ***It would have been obvious at the time the invention was made to a person having ordinary skill in the art to secure the support as disclosed by Jeffries and others in the device disclosed by Chiu for better stability.***” Office Action, page 3. (Emphasis added). Although Applicants do not agree with the Examiner’s assertion that Chiu discloses the claimed invention “except for the support being secured to the surface of a circuit board,” Applicants assert that the Examiner’s combination of the primary and secondary references is unsupported by the cited prior art and the invention disclosed in Chiu, because such an obviousness determination does not have any “rational underpinning to support a conclusion of obviousness.” Kahn, 441 at 988; MPEP §2142. Further, the “proposed modification” necessary for the obviousness conclusion makes the prior art (Chiu) “unsatisfactory for its intended purpose.” M.P.E.P. § 2143.01. Thus, Applicants assert it would not be obvious to secure the support to a circuit board as disclosed in Jeffries, Edfors, or Russell in combination with the support disclosed in Chiu, for the reasons set forth below.

As stated in Chiu and as acknowledged by the Examiner, the fixture/heat sink disclosed in Chiu “may be sprung open for securing the heat sink of each device...[e]ach leg 31c and 31d moves, for example for “a” to “b” when the legs are pulled apart.” Chiu, col. 3, lines 22-30. As further discussed in Chiu, the fixture/heat sink is not secured to the surface so that “[a]ny bad devices from an array can be removed from the fixture and replaced with a good device.” *Id.*, col. 3, lines 54-56. Thus, one of the primary purposes of Chiu is to provide “easy repair and replacement of devices.” *Id.*, col. 3, lines 63-64. Accordingly, ***the fixture disclosed in Chiu is designed to be unsecured to a surface*** so that devices may be removed and inserted into the fixture during testing and burn-in.

In contrast, the three secondary references cited by the Examiner, Jeffries, Edfors, and Russell, each disclose a fixture or support that is secured to a surface or printed circuit board and

used for a clearly different purpose than the support disclosed in Chiu. For example, the device disclosed in Jeffries is used to support and secure a “daughter board to a mother board,” such as in the context of a “desktop computer or a tower computer.” Jeffries et al., col. 2, lines 59-65. Further, the “heat dissipater” disclosed in Jeffries “prevents the daughter board 14 from vibrating back and forth, but also prevents the daughter board from releasing from the connector 16.” *Id.*, col. 3, lines 66-67; col. 4, lines 1-2. Thus, the device in Jeffries is ***not used during testing or burn-in***, but is used to secure an add-on “daughter board” to the mother board of a personal computer and is ***not intended to secure a multiple devices for easy insertion or removal***.

Similarly, the device disclosed in Edfors discusses an assembly in which “a plurality of circuit chips...have their top sides thermally and mechanically attached to...a centrally disposed metal sink block.” Edfors, col. 1, lines 64-67; col. 2, line 1. Additionally, the circuit chips discussed in Edfors are attached “with a thermally conductive electrically insulating adhesive such as diamond filled epoxy.” *Id.*, col. 3, lines 20-25. Again, Edfors does not disclose or envision a use for testing or burn-in, as the circuit chips are secured in the assembly by an adhesive or epoxy and ***cannot be easily removed or inserted during burn-in or testing***.

Finally, Russell discloses a “mounting pad” for an “integrated circuit chip” to be secured to a printed circuit board. Russell, col. 1, lines 55-66. The integrated circuit chips are “bonded to the mounting pad (102) with thermally conductive adhesive or epoxy.” *Id.*, col. 3, lines 43-47. Additionally, in Russell, the “side and central portions” of the “mounting pad” are secured by “solder or conductive epoxy...applied to the aperture.” *Id.*, col. 4, lines 1-5. Thus, both the “mounting pads” and the “integrated circuit chips” held in the “mounting pad” are secure by an adhesive or epoxy, ***making movement of the “mounting pad” or insertion or removal of the “integrated circuit chips” impossible***.

In contrast, as discussed above, ***the fixture disclosed in Chiu is unsecured to any surface to allow insertion and/or removal of devices***. Accordingly, there would be no rational reason to use the inventions disclosed in the secondary references of Jeffries, Edfors, and Russell in combination with Chiu, as there is no need for any mounting technique that permanently secures

the fixture in Chiu. Any use of a permanent mounting device, such as those disclosed in Jeffries, Edfors, or Russell, *would eliminate the ability to remove or insert devices into the fixture of Chiu during testing or burn-in*. Further, the epoxies or adhesives used to secure the support in the Jeffries, Edfors, or Russell references would make those devices unsuitable for use during testing or burn-in if replacement of chips or devices is desirable as described in Chiu. Therefore, the Examiner's assertion that it would have been obvious to one having ordinary skill in the art to secure the support via the techniques disclosed in Jeffries, Edfors, or Russell in the device disclosed by Chiu for "better stability" is not supported by any rational reason why one of ordinary skill in the art would make this combination.

Additionally, as stated in M.P.E.P. § 2143.01, "if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation." M.P.E.P. § 2143.01 (V). As stated in Chiu, a purpose of the invention disclosed therein is to provide "easy repair and replacement of devices." Chiu, col. 3, lines 63. In the present case, the Examiner is proposing to combine securing the fixture in Chiu by the techniques disclosed in Jeffries, Edfors, or Russell. As discussed above, during testing or burn-in of the devices in the fixture of Chiu, "the legs 31c and 31d are opened or moved apart to insert the heat sinks 16 into slots 31b." *Id.*, col. 3, lines 24-26. Securing the fixture, as suggested by the Examiner, is not feasible and would prevent the legs from being opened or moved so that devices may be inserted or removed. Thus, using the secured support techniques of Jeffries, Edfors, or Russell with the techniques disclosed in Chiu would eliminate the purpose of the invention disclosed in Chiu and clearly renders Chiu unsatisfactory for its intended purpose.

Therefore, for at least the reasons discussed above, Applicants respectfully assert that the cited references, taken alone or in hypothetical combination, do not render the recited subject matter obvious. Accordingly, Applicants respectfully request withdrawal of the pending rejection under 35 U.S.C. §103 and allowance of independent claims 33, 68, and 71, as well as the claims that depend therefrom.

Deficiencies of the Second §103 Rejection

Claims 39, 40, and 43-45 are indirectly dependent on claim 33, and claim 74 is dependent on claim 71. As discussed above with reference to the first rejection under §103, Chiu does not disclose a “support is secured to said surface” as recited in independent claim 33 or “a cross piece coupled to the surface” as recited in independent claim 71. The secondary references, Jeffries, Edfors, or Russell, do nothing to obviate the deficiencies of the primary reference discussed above with regard to the claims 33 and 71. Thus, the cited combination does not disclose or suggest all of the elements of the claimed invention, and thus, cannot possibly render the claimed subject matter obvious. Accordingly, Applicants respectfully request withdrawal of the Examiner’s rejection and allowance of claims 39, 40, 43-45, and 74.

Payment of Fees and General Authorization for Extensions of Time

No fees are believed to be due at this time. If any fees, including fees for extensions of time and other reasons, are deemed necessary to advance prosecution of the present application, at this or any other time, Applicants hereby authorize the Commissioner to charge such requisite fees to Deposit Account No. 06-1315; Order No. MICS:0180-2. In accordance with 37 C.F.R. § 1.136, Applicants hereby provide a general authorization to treat this and any future reply requiring an extension of time as incorporating a request thereof.

Conclusion

In view of the remarks set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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